

SOME NEW SPECIES OF LACHNOSTERNA.

By JOHN B. SMITH.

For more than a year I have been, during odd moments, studying the species of *Lachnosterna*, more especially with the aim of bringing out prominently the remarkable sexual characters of the species—characters which shed so strong a light on specific relationships that their study can not be much longer neglected. Not the male only, but the female as well, show excellent and sharply defined characters which place species upon a much more solid foundation than heretofore possible by a study of external structure merely—structures which are all more or less variable, and which allow too much latitude to individual opinion. The sexual characters within my experience are absolutely invariable—there is no “more” or “less,” but they are practically identical, and equally constant in both sexes. Where any difference appears, it is indicative of a distinct species, though on the other hand I am not prepared to say that identity of sexual structure in all cases indicates identity of species. It would do so in *Lachnosterna*, in my opinion. These studies on the sexual characters of *Lachnosterna* are now completed, and I have figured 87 of the species in 265 figures. The paper is ready for the printer, and will appear in due course in the Proceedings of the United States Nat'l Museum. As there is usually considerable delay in the printing of these Proceedings, I prefer to describe the new species now, to call attention to them during the present season. In “Insect Life,” No. 6, I have already described four species, usually combined under the term *fusca*, another of these forms has come into my hands, equally deserving specific recognition.

L. insperata, sp. nov.

Agrees very completely with Dr. Horn's description of *fusca*, and superficially no obvious differences are apparent. The ventral characters of the male resemble those of *dubia* and *arcuata*, the ridge being strongly arched and small, but situated back from the posterior margin of the penultimate segment and not overhanging the last. In the female I have found no distinctive characters. Six specimens, taken under stones early in Spring by Mr. M. L. Linell, at Snake Hill, N. J., are before me—4 of them males, 2 females. The specimens are dark in color, and large and stout, resembling most nearly the larger form of *fusca*, which occurs with it. The male is readily recognizable, and I picked out the species immediately from a mixture of other specimens. The sexual structures bear out perfectly the position assigned, which is between *arcuata* Smith, and *dubia* Smith.

L. ulkei, sp. nov.

Form robust, ovate, rufocastaneous, shining. Clypeus slightly emarginate, the border moderately reflexed, surface rather closely punctate. Thorax widest at base, arcuately narrowed to the apex, margin indistinctly crenulated, with short ciliae, surface distinctly but very irregularly and not very closely punctured, with a smooth median line. Elytra more deeply and densely, somewhat confluent punctured, the costae evident. Pygidium rather finely and sparsely punctate. Metasternum densely punctured, the hair long and dense. Abdomen shining, sparsely punctate. Claws curved, the tooth median, stronger in the female. Last joint of the maxillary palpi ovate, not impressed. Length .85 inch = 21—22 mm.

Habitat—So. Car. (Ulke), Georgia (Ulke), Tenn. (U. S. N. Mus.), E. Florida (Ashmead). 3 ♂♂, 1 ♀.

MALE.—Antennal club as long as the stem. Abdomen flattened at middle, penultimate segment with a perfectly straight, feebly elevated ridge, behind which the segment is strongly depressed, making the declivity deep and abrupt without any great elevation of the surface of the ridge. The ridge is close to the margin of the segment, and in the Tennessee specimen almost coincident with it. Last ventral feebly concave. Inner spur of the hind tibia two-thirds the length of the outer and stouter.

FEMALE.—Antennal club small, much shorter than the funiculus. Last ventral segment feebly emarginate at apex. Pygidium more elongate than in the male, more shining, the punctures more deeply impressed.

This species agrees in all essentials and group characters with *fusca*, and with that species it has been confounded. The four specimens before me are very uniform in appearance, and chiefly differ habitally, in the paler color and the much more rugose appearance, the punctuation being coarser throughout. The lateral margin of the thorax is also very feebly crenulated, yet not so as to throw the species into another group. The ventral character of the male gives an obvious and safe distinguishing feature for that sex. In the female the somewhat broader, more oval form and the coarser punctuation must suffice if the genitalia be not examined.

L. quadrata, sp. nov.

Form oblong, parallel, rather deep brown, shining. Clypeus very feebly emarginate, moderately reflexed, surface coarsely and rather sparsely punctured, front more closely and more deeply punctured. Thorax widest at base, arcuately but not very greatly narrowed to the apex, margin entire, with short ciliae, surface rather sparsely and irregularly punctate, without an obvious smooth median line. Elytra closely and confluent punctured, the punctures tending to form longitudinal series, costae obvious but not much elevated. Pygidium sparsely and finely punctate, the last two segments more coarsely. Claws curved, the tooth strong and median. Last joint of maxillary palpi ovate, not impressed. Length .87 inch = 22 mm.

Habitat—Enterprise, Florida. May.

MALE.—Unknown.

FEMALE.—Antennal club small, much shorter than the funiculus. Last ventral segment broadly emarginate at apex.

This species is based upon a single specimen taken by Mr. Schwarz, and now in his collection. It is evidently related to *fusca*, and agrees with it in all structural details. It is however well distinguished by the almost square clypeus, the punctuation of the head and elytra, and by the curiously parallel form. The genitalia are strongly characteristic and distinct.

L. nova, sp. nov.

Oblong, slightly broader behind, chestnut brown, shining. Clypeus moderately emarginate, the border narrowly reflexed, surface densely and coarsely punctured, the front less densely so. Thorax gradually narrowed from base to apex, sides feebly arcuate, the margin distinctly crenate, surface with distinct irregular punctures, sparse on the disc, where there are irregular smooth spaces, more densely and equally placed at the sides. Elytral punctures finer than those of the thorax, much more closely placed, somewhat rugulose, the costæ feeble but evident. Pygidium sparsely, finely and indistinctly punctate. Metasternum densely punctured, the hair not long nor dense, shorter in the female. Abdomen sparsely punctate at the sides, the last two segments more coarsely. Claws curved, the tooth strong and median. Last joint of maxillary palpi fusiform, not impressed. Length, .55—.70 inch = 14—18 mm.

Habitat—N. Y., Dist. Col., N. C.

MALE.—Antennal club equal to or slightly longer than the funiculus. Abdomen slightly flattened at middle, penultimate segment with a distinct, arcuate, granulated ridge, behind which the segment is deeply impressed and punctured. Last segment with a cupuliform depression. Inner spur of hind tibia shorter.

FEMALE.—Antennal club shorter than the funiculus. Penultimate segment with a linear impression close to and parallel with the hind margin. Hind tarsi slightly shorter than the male.

This species is not uncommon at Washington, and has been very generally confounded with *fraterna* and *forsteri*, with which it agrees in all group characters. Apart from the primary differences in the male genitalia, this sex is always easily recognizable by the distinct arcuate ridge of the penultimate and cupuliform depression of the last segment. The same character is sometimes approached in the *var. forsteri* but is never so distinct. The thoracic margin in both sexes is more distinctly crenate, though this too is indicated in some specimens of *fraterna*.

L. hornii, sp. nov.

Oblong oval, not broader behind, convex, very deep-brown or piceous, shining. Clypeus moderately deeply emarginate, rather more acutely in the female, margin narrowly reflexed, rather coarsely densely punctured, front scarcely less densely

punctured. Thorax distinctly narrower in front, sides very obtusely angulate, widest behind the middle, narrowed to base, more obliquely narrowed in front, margin feebly crenate, sparsely ciliate, disc convex, the punctures moderately coarse, variably placed, sometimes closely and equally, sometimes sparsely and irregularly on the disc, leaving smooth spaces, but no smooth median line; a distinct depression of the basal margin externally. Elytral punctures finer, much more dense, somewhat rugulose, costæ evident. Pygidium moderately and somewhat irregularly punctured, less densely so in the female. Metasternum densely punctured, the hair long and dense in the male, short and sparse in the female. Abdomen finely punctate, more dense at the sides, the last two segments much more coarsely and densely punctate. Last joint of maxillary palpi fusiform, not impressed. Length .75—.85 inch = 19 to 21 mm.

Habitat—Washington, D. C., Tennessee, Virginia, Ohio.

MALE.—Antennal club slightly longer than the funiculus. Penultimate segment with a very strongly elevated, overhanging arcuated crest, occupying nearly the entire length of the segment, behind which there is a deep, transverse, punctured impression. In some specimens the crest is divided at the middle, and a longitudinal impression extends forward to the middle of the preceding segment. Last ventral with a quadrate, punctured impression, the hind margin with a small deep emargination. Claws arcuate, tooth rather extra median, shorter than in the female. The fixed spur is quite short, less than half the length of the outer, and proportionately less stout.

FEMALE.—Antennal club shorter than the funiculus. Pygidium more elongate, the punctures smaller and more sparse. Posterior femora stouter, spurs of hind tibiæ short and stout. Penultimate ventral segment with a strongly impressed line near the hind margin, behind which the segment is depressed. Last ventral segment sinuate at apex, scarcely emarginate. Tarsi not shorter than in the male.

Variations.—In a series of nine specimens no variations are observed. The species is remarkably constant in form and color.

About a dozen specimens of this interesting form were taken at Washington during the season of 1888. None of the local collectors had ever taken it before, and it was but sparingly taken among the hundreds of other specimens. Mr. Schwarz received a single male specimen from the mountains of Tennessee, Mr. Alwood saw a specimen in a local collection in Virginia, and I saw several specimens in Mr. Dury's collection at Cincinnati, Ohio. The species is therefore probably widely distributed, though rare.

In group characters it would seem at first referable to the *fraterna* section of the group, but the large size, very long tarsi, and the marked sexual characters refer it rather with *rugosa* and allies, though the thorax is not evidently angulated, and the punctures not nearly so coarse. In

the short spur of the male it resembles *infidelis* while the distinct elytral costæ, as well as the ventral characters of the male, make it abundantly distinct.

I take pleasure in dedicating this strongly marked species to my good friend and mentor, Dr. Horn.

L. biimpressa, sp. nov.

Oblong, scarcely ovate, pale reddish-brown, shining. Clypeus moderately deeply emarginate, margin narrowly reflexed, densely and rather coarsely punctured, as is also the front. Thorax distinctly narrower in front, sides obtusely angulate, widest at middle, narrowed to base, more obliquely narrowed in front, margin irregular, scarcely crenate, sparsely ciliate, disc convex, the punctures coarse and rather closely placed, a distinct smooth median line, a distinct impression of the basal margin externally, and a distinct foveate impression at each side, nearly opposite the angle. Elytral punctuation finer, more dense, somewhat rugulose; sutural costa distinct, the others feeble. Metasternum closely punctate, with moderately long hair. Pygidium rather sparsely, finely and irregularly punctured. Claws arcuate, with a strong median tooth. Last joint of maxillary palpi fusiform, not impressed. Length, .76 inch = 18 mm.

Habitat—Manhattan, Kansas.

MALE.—Antennal club nearly as long as the stem. Abdomen flattened at middle, sparsely finely punctate at the sides, the last two segments more coarsely. Penultimate ventral segment with a rather feebly elevated, strongly arcuated ridge, behind which the segment is deeply impressed and punctured; the last segment with a somewhat quadrate depression.

Only a single male specimen is known to me. I have placed it in the *rugosa* group, and associated it with *scitula*, though the specimen has very evidently but nine antennal joints on each side. Yet all the other characters of structure and habitus refer the species here, while it would be otherwise associated with entirely incongruous material. Under the circumstances I regard the 9 joints as accidental, and shall expect other specimens to show the typical 10 jointed form.

L. longispina, sp. nov.

Oblong, nearly parallel, ferruginous brown, feebly shining, sparsely clothed with yellowish, erect hairs, longer and more dense on the thorax, shorter on the elytra, where they form distinct rows on the costæ similar to those of *hirticula*. Head densely and coarsely punctured, with moderately long hair, clypeus emarginate, the border moderately reflexed. Thorax widest at middle, slightly narrowed at base, more at apex, the margin feebly crenate, ciliate, basal margin channelled externally, surface with coarse punctures moderately closely placed, with long erect hairs. Elytral punctures much finer than those of the thorax, less impressed, denser and somewhat rugulose, the hair sparser and shorter than on the thorax, the discal costæ not distinct, marked only by the rows of longer hair. Pygidium of male sparsely and not deeply punctate, not hairy. Metasternum densely punctured, the hairs

yellow, long and dense. Claws arcuate, a strong acute median tooth. Length, .68 inch = 17 mm.

Habitat—South Carolina (Morrison), Grand Ledge, Mich., May 24th, (Schwarz).

MALE.—Antennal club a little longer than the stem. Abdomen slightly flattened at middle, the penultimate segment with a transverse, arcuate, rugulose elevation, behind which is a concavity. Last ventral flat. Inner spur of hind tibia fully as long and scarcely stronger than the outer.

FEMALE.—Wanting.

Three specimens of this form, which is perhaps confused with *hirsuta* (with which it agrees in group characters) in collections, are before me, all of them males. It is readily known by the almost equally long spurs of the male, and by the distinct lines of longer hair on the elytra. The thoracic margin is also evidently, if not strongly, crenulate.

L. innominata, sp. nov.

Oblong oval, convex, chestnut brown, shining. Clypeus moderately deeply, acutely emarginate, the border moderately reflexed, surface rather closely and coarsely punctate, front less densely and more coarsely punctate. Thorax, sides arcuate, narrowing rather regularly toward apex, the margin scarcely irregular, not crenate, with long ciliæ, the punctures small, sparse and irregularly placed, no median line, a distinct channel along the base externally. Punctures of the elytra more coarse and dense than those of thorax, the costæ evident, but not prominent. Pygidium sparsely indistinctly punctate. Metasternum punctate, the hair (♂) long and abundant. Abdomen indistinctly punctate at the sides, the last two segments more coarsely punctate. Claws arcuate, a long acute median tooth, smaller on anterior tarsi. Last joint of maxillary palpi fusiform. Length, .72 inch = 18 mm.

Habitat—Winona, Minn., U. S. N. Mus. Acc. 21542.

MALE.—Antennal club as long as the stem. Abdomen flattened and slightly concave at middle. Penultimate segment with a rather feeble, semicircular depression on each side of which is a short oblique tuberosity. Last segment transversely concave, almost cupuliform. Inner spur of hind tibia rather more than half the length of the outer, stout and straight.

FEMALE.—Unknown.

This species is known to me in a single male specimen only. It is intermediate in some respects between *implicita* and *balia*, yet abundantly distinct from either. The male characters are more like those of *implicita* save that the last segment is concave, but the very smooth, sparsely punctured thorax is distinctive. This species is also much larger than its immediate allies.

L. antennata, sp. nov.

This species is intermediate between *tristis* and *crinita*, while evidently distinct from both. It has the size, vestiture, and general habitus of *tristis*, but the smooth, shining surface of *crinita*. The female is recognizable by the shining surface, associated with the vestiture of *tristis*. The antennæ of the male have the club distinctly longer than the stem, and much longer than in *tristis*, without attaining the abnormal development of *crinita*. Size of *tristis*.

Habitat—Texas.

The collection of the U. S. Nat'l Museum contains a long series of males, and but a single female. There is no variation whatever, except a very slight one in size. The ventral characters are as in *tristis*. I have seen other specimens than those in the Museum Collection, and all are from Texas. It is probably common locally.

I shall be glad to name *Lachnosterna* for collectors for the privilege of keeping what may prove desirable for study.

Editorial Notes.

As will be noted from the first page of the cover, there has been a complete change of the editorial staff of ENTOMOLOGICA AMERICANA. At the April meeting of the Society Mr. Hulst resigned his editorial position on the plea of lack of time to properly attend to the work, and insisted on his resignation notwithstanding the decided disinclination on the part of the Society to accept it. A unanimous vote of thanks for able manner in which he had conducted the Journal, was tendered Mr. Hulst. Mr. Roberts thereupon followed the example of Mr. Hulst, and on the same plea—business engagements—resigned his post as assistant, a resignation also reluctantly accepted. The choice of the Society for the vacant positions fell upon myself as editor, and Mr. F. H. Chittenden as assistant editor. Being again settled so near New York City as to be practically of it, I have accepted the office, and we are now back in the editorial chair, ready to poke advice or criticism at those who need or deserve it. The chair feels familiar, but it has grown since we were last in it, and our readers must indulge us a little, until we learn to fill it as well as our predecessor. As Mr. Hulst will continue to contribute as heretofore, and has promised us his assistance, we hope to satisfy all reasonable demands.

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We have received Bulletin No. 1 of the Central Experiment Station at Washington, which contains some information of entomological interest which we will try to present to our readers in the next number.